

GUS - 115  
Copy 1 of 1

30 April 1956

MEMORANDUM FOR: Project Director

SUBJECT : Report from Mr. C.L. Johnson on Project GUSTO

1. Mr. C.L. Johnson called me on 28 April to report on latest developments in the design of GUSTO Model II. His report was quite discouraging at first. Information gleaned by Mr. Mel George in his contact with Corning indicated the possibility of getting high strength material from that company in the near future was very doubtful. Based on the state of the art as it exists today, Kelly doubted that more than a maximum of 30% to 35% gain strength-wise was possible.

25X1A 2. Kelly is therefore of the opinion that material which could be used in GUSTO is pretty much limited to what is presently available through [redacted] and similar sources. He has come to the conclusion that such material would lead to a structure which is not competitive with metal and, therefore, that the desired range and altitude would be most difficult, if not impossible, to achieve. In addition, his proposed configuration for Model II has aerodynamic problems. He has been experimenting with alterations to this configuration which involve no tail assembly, essentially a flying wing, and has not been able in his own mind to arrive at a suitable configuration, with or without tail, which he would consider aerodynamically stable and capable of achieving mission requirements. The above bears out what Col. Gibbs reported as a result of his recent meeting with Kelly.

3. Kelly proposed to put Model II GUSTO on the back burner since it appears marginal at this time and take a look at another approach. Such approach would involve a configuration capable of 3 1/2 times the speed of the AQUATONE vehicle and an increase of approximately 25% in range. Such RAINBOW protection as is available in the present state of the art would be incorporated in this design. He did propose, however, to devote the next 10 days or so to an investigation of the feasibility of this approach while at the same time continuing investigations into *altitude*

GUSTO Model II. He was authorized to proceed on this path and to report to you on its possibilities no later than 16 May. I subsequently discussed this decision with Col. Gibbs who was in full agreement with same.

4. Since Kelly was so pessimistic about a Model II GUSTO approach I inquired whether he planned to re-open consideration of the Model I GUSTO. You will remember that the approach on Model II GUSTO was that every consideration would be given to [redacted] area and then Kelly would attempt to design around such requirements and, hopefully, make the aircraft fly at altitude. This approach now appears impractical and some compromise between the two requirements would obviously have to be made. Kelly was pessimistic, from information available to him, as to whether or not [redacted] would be able to handle his end of the Model I GUSTO but agreed that this might be the only feasible approach. The other alternative is, of course, to attempt to achieve greater speed and altitude with correspondingly less need for absolute RAINBOW protection.

5. Kelly's schedule requires him to be in Washington on 14 May for a briefing. He will be prepared to see you on the 15th or on the morning of the 16th to give you a full report on his investigations to date on Model II GUSTO as well as a preliminary report on what he thinks is possible in the new higher altitude, higher speed approach. Since you will be in San Francisco on the 14th and since your plans, as I understand them, contemplate returning to D.C. via Los Angeles, you may desire to return to D.C. direct from San Francisco overnight Wednesday in order to see Kelly here on Thursday unless you have other reasons for planning to return via Los Angeles. In the latter case you probably would not be in D.C. until Friday morning and the meeting with Kelly would have to be scheduled accordingly.

25X1A9a

6. I discussed Kelly's report with [redacted] and suggested he might want to re-open his thinking in connection with RAINBOW problems on Model I GUSTO. I also indicated to him that Kelly desires to briefly look at another approach to the problem. I gathered that Frank's reaction to the newest approach was favorable. I presume you would desire to have Dr. Rodgers and perhaps Norm Taylor at our meeting with Kelly on the 15th or 16th but have made no firm plans for their attendance at

such a meeting. Both will, of course, be in Washington on the 8th of May for reasons stated in another memorandum [REDACTED]

25X1D

25X1A9a/

GPK:mdl (30 Apr 1958)

1 - Addressee

2 - Dep. Prof. Dir. [REDACTED]

4 - GCS Bureau

25X1A9a